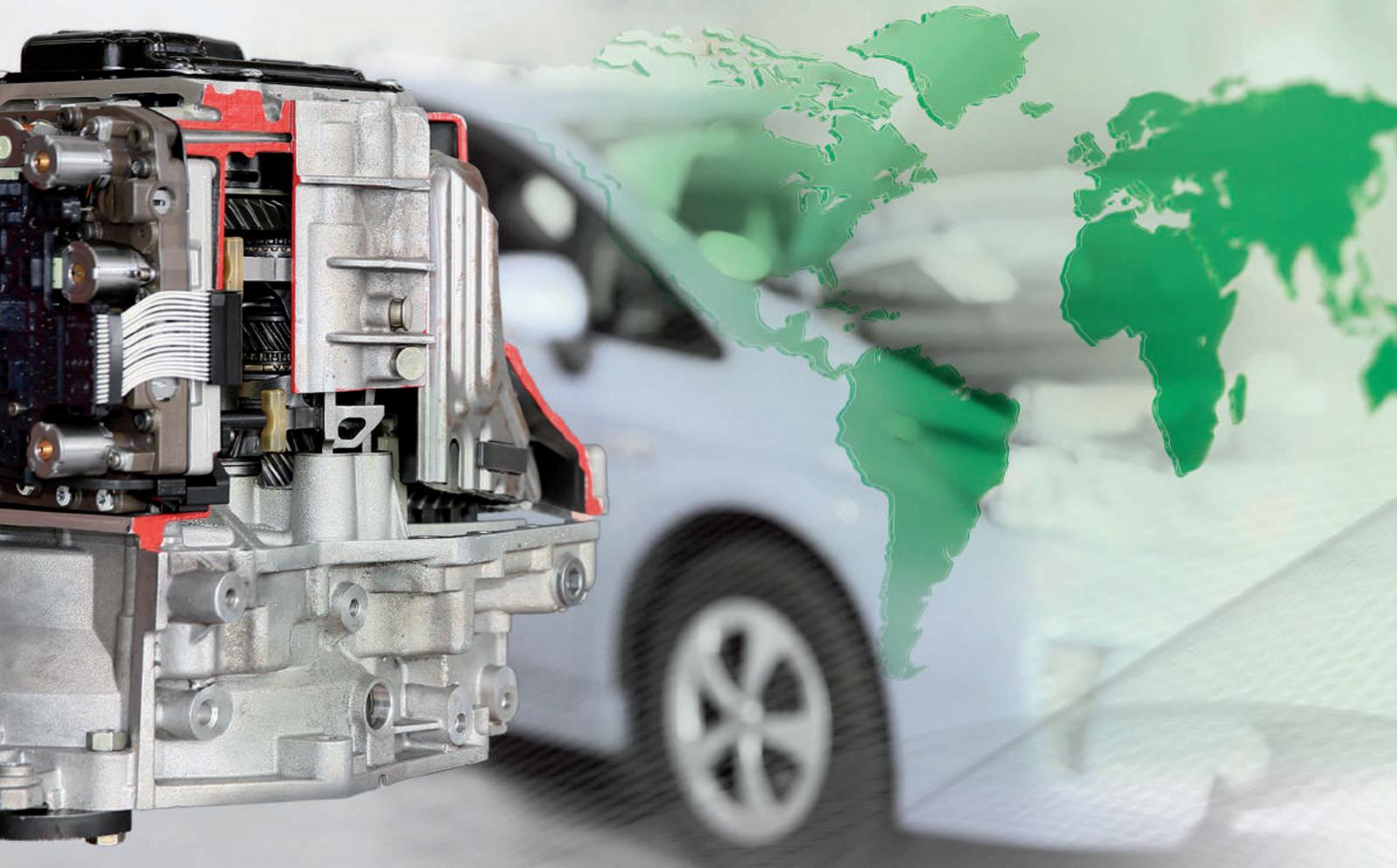


# Lucas



# Lucas Academy

**Automotive Training  
& Technical Assistance**

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[lucasdiesel.com](http://lucasdiesel.com)

Trust **Lucas**



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# Lucas Academy

## EXCELLENCE THROUGH TRAINING & TECHNICAL ASSISTANCE



Lucas Academy is a global company geared towards **training in automotive technology**. Its central office is in East Sussex and has another four additional fully operating locations in the United Kingdom: London, Manchester, Birmingham and Glasgow.

Our objective is to increase and improve the range of services offered to our customers all over the world.

Our state-of-the-art facilities include fully equipped classrooms and portable devices **to provide our courses where our customers require them**. This makes our network an international one that offers personalised and a la carte training programmes.

**Customised, in-person, practical and online training, adapted to the needs of each client.**

### High level training experience

The engine industry is developing at a faster rate now than it ever has throughout its history and the systems and technology in this regard are increasingly complex and demanding. Because of this, we are committed to creating and providing **the most specific and up-to-date courses**, both in person and online.

A large group of professionals who are specialised and qualified in the automotive sector will take care of training for each participant **depending on their needs and personal requirements**.

Lucas Academy offers learning experiences of the highest quality. Our courses have been developed by **qualified instructors with extensive experience in the automotive industry**. Their extensive background and high capacity to share their knowledge in a clear and structured manner ensure an **exceptional training experience**.

### Immediate and professional technical support

The customer and the workshop may encounter numerous **technical problems in their daily work** and, to resolve them, they do not always have the necessary knowledge of all car brands.

We can help them by offering them **assistance** and directly providing them with **fast and accurate answers directly**.



### AUTOMOTIVE TECHNICAL TRAINING



### E-LEARNING



### TECHNICAL ASSISTANCE



## AUTOMOTIVE TECHNICAL TRAINING IN LATEST DIESEL TECHNOLOGIES

### COURSE SUMMARY

Level 1

#### SPECIALIST IN DIESEL EXHAUST SYSTEMS AND ANTIPOLLUTION

##### Diesel Exhaust Systems and Antipollution

<b>DES01</b>	Diagnosis of Exhaust Smoke and Antipollution in Diesel
--------------	--

Once all the training courses regarding "Diesel Exhaust Systems and Antipollution" have been completed, you will gain the certificate of Specialist in Diesel Exhaust Systems and Antipollution.



## COURSE SUMMARY

Level 2

### SPECIALIST IN DIESEL INJECTION SYSTEMS

Diesel Injection	
<b>CRT01</b>	Common Rail Systems: Bosch, Delphi, Siemens-VDO, Denso - Theory
<b>CRBIO1</b>	Bosch Diesel Injection Common Rail 1st Gen. (CP1) - Repairing
<b>CRBIO2</b>	Bosch Diesel Injection Common Rail 2nd Gen. (CP1H3, CP3) - Repairing
<b>CRBIO3</b>	Bosch Diesel Injection Common Rail 3rd Gen. (CP4 pumps and piezoelectric injectors) - Repairing
<b>CRSIO1</b>	Siemens-VDO Diesel Injection Common Rail (SID 802) - Repairing
<b>CRDPIO1</b>	Delphi Diesel Injection Common Rail (FP1, FP3) - Repairing
<b>CRDSIO1</b>	Denso Diesel Injection Common Rail (HP2, HP3, HP4) - Repairing
<b>UISB01</b>	UIS/UPS Bosch Systems (commercial vehicles and cars) - Repairing
<b>UISDP01</b>	UIS Delphi Systems (commercial vehicles and cars) - Repairing
<b>CHH01</b>	Caterpillar HEUI C7/C9 Hydraulic Systems - Repairing
<b>CHH02</b>	Caterpillar HEUI Navistar Hydraulic Systems - Repairing
<b>CRCP01</b>	Caterpillar Common Rail Systems C6.6 – C6.4 / Perkins - Repairing
<b>UISDT01</b>	UIS-EUI Detroit Diesel Electronic Systems - Repairing
<b>CCE01</b>	Celect Cummins Electronic Systems - Repairing
Diesel Exhaust Systems and Antipollution	
<b>DES01</b>	Diagnosis of Exhaust Smoke and Antipollution in Diesel

Once all the training courses regarding "Diesel Injection" and "Diesel Exhaust Systems and Antipollution"; have been completed you will gain the certificate of Specialist in Diesel Injection Systems.



Level 1

**SPECIALIST IN DIESEL EXHAUST SYSTEMS AND ANTIPOLLUTION****Diesel Exhaust Systems and Antipollution****16H**  
DURATION**DES01****Diagnosis of Exhaust Smoke and Antipollution in Diesel****OBJECTIVES**

Identify the sources of antipollution in the vehicle, composition of the exhaust fumes, antipollution systems and to interpret their values to find out the condition of the engine.

To learn about the methods of measuring exhaust fumes. Recognise the reasons for contaminant emissions in the engine. Diagnosis of breakdowns in an engine according to exhaust fumes analysis.

Level 2

**SPECIALIST IN DIESEL INJECTION SYSTEMS****Diesel Injection****16H**  
DURATION**CRT01****Common Rail Systems:  
Bosch, Delphi, Siemens-VDO, Denso - Theory****OBJECTIVES**

To gain sound knowledge of the correct functioning of Bosch, Delphi, Siemens-VDO and Denso Common Rail systems.

The description and operation of the basic components of each system, assembly and disassembly instructions, verification & checking process.

**CRB101****Bosch Diesel Injection Common Rail 1st Gen. (CP1) - Repairing****OBJECTIVES**

To gain sound knowledge for the repairing and testing of Bosch CP1 pumps and CR11 injectors.

The description and operation of the basic components of Bosch CP1 pumps and CR11 injectors; assembly and disassembly instructions, verification and checking process and bench testing.

**CRB102****Bosch Diesel Injection Common Rail 2nd Gen. (CP1H3, CP3) - Repairing****OBJECTIVES**

To gain sound knowledge for the repairing and testing of Bosch CP1H3, CP3 pumps and CR12 injectors.

The description and operation of the basic components of Bosch CP1H3, CP3 pumps and CR12 injectors; assembly and disassembly instructions, verification and checking process and bench testing.

Level 2

**SPECIALIST IN DIESEL INJECTION SYSTEMS****Diesel Injection****16H**  
DURATION**CRBIO3****Bosch Diesel Injection Common Rail 3rd Gen.  
(CP4 pumps and piezoelectric injectors) - Repairing****OBJECTIVES**

To gain sound knowledge for the repairing and testing of Bosch CP4 pumps and piezoelectric injectors.

The description and operation of the basic components of Bosch CP4 pumps and piezoelectric injectors; assembly and disassembly instructions, verification and checking process and bench testing.

**CRSIO1****Siemens-VDO Diesel Injection Common Rail (SID 802) - Repairing****OBJECTIVES**

To gain sound knowledge for the repairing and testing of Siemens – VDO CR pumps and injectors.

The description and operation of the basic components of Siemens – VDO CR pumps and injectors; assembly and disassembly instructions, verification and checking process and bench testing.

**CRDPIO1****Delphi Diesel Injection Common Rail (FP1, FP3) - Repairing****OBJECTIVES**

To gain sound knowledge for the repairing and testing of Delphi CR pumps and injectors.

The description and operation of the basic components of Delphi CR pumps and injectors; assembly and disassembly instructions, verification and checking process and bench testing.

**CRDSIO1****Denso Diesel Injection Common Rail (HP2, HP3, HP4) - Repairing****OBJECTIVES**

To gain sound knowledge for the repairing and testing of Denso CR pumps and injectors.

The description and operation of the basic components of Denso CR pumps and injectors; assembly and disassembly instructions, verification and checking process and bench testing.

Level 2

**SPECIALIST IN DIESEL INJECTION SYSTEMS****Diesel Injection****16H**  
DURATION**UISB01****UIS/UPS Bosch Systems (comercial vehicles and cars) - Repairing****OBJECTIVES**

To gain sound knowledge for the repairing and testing of Bosch Unit Injectors.

The description and operation of the basic components of Bosch unit injectors, assembly and disassembly instructions, verification & checking process and bench testing.

**UISDP01****UIS Delphi Systems (comercial vehicles and cars) - Repairing****OBJECTIVES**

To gain sound knowledge for the repairing and testing of Delphi Unit Injectors.

The description and operation of the basic components of Delphi unit injectors, assembly and disassembly instructions, verification & checking process and bench testing.

**CHH01****Caterpillar HEUI C7/C9 Hydraulic Systems - Repairing****OBJECTIVES**

Acquire sound knowledge to repair, maintain and diagnose the hydraulic injectors installed in the Caterpillar HEUI C7/C9 injection system.

Resolution of problems and operation of the injector components. Electrical diagnosis of the coil and verification of the valve travel.

Calibration of the injector components.

**CHH02****Caterpillar HEUI Navistar Hydraulic Systems - Repairing****OBJECTIVES**

Acquire sound knowledge to repair, maintain and diagnose the hydraulic injectors installed in the Caterpillar HEUI Navistar injection system.

Resolution of problems and operation of the injector components.

Electrical diagnosis of the coil and verification of the valve travel.

Calibration of the injector components.

Level 2

**SPECIALIST IN DIESEL INJECTION SYSTEMS****Diesel Injection****16H**  
DURATION**CRCPO1****Caterpillar Common Rail Systems C6.6 - C6.4 / Perkins - Repairing****OBJECTIVES**

Acquire sound knowledge to repair, maintain and diagnose the injectors involved in Caterpillar Common Rail C6.6 - C6.4 / Perkins injection system.

Resolution of problems and operation of the injector components.

Electrical diagnosis of the coil and verification of the valve travel.

Calibration of the injector components.

**UISDT01****UIS-EUI Detroit Diesel Electronic Systems - Repairing****OBJECTIVES**

Acquire sound knowledge to repair, maintain and diagnose the electronic injectors involved in UIS-EUI Detroit Diesel injection system.

Resolution of problems and operation of the injector components.

Electrical diagnosis of the coil and verification of the valve travel.

Calibration of the injector components.

**CCE01****Celect Cummins Electronic Systems - Repairing****OBJECTIVES**

Acquire sound knowledge to repair, maintain and diagnose the electronic injectors involved in the Celect Cummins injection system.

Resolution of problems and operation of the injector components.

Electrical diagnosis of the coil. Calibration of the injector components.

**Diesel Exhaust Systems and Antipollution****16H**  
DURATION**DES01****Diagnosis of Exhaust Smoke and Antipollution in Diesel****OBJECTIVES**

Identify the sources of antipollution in the vehicle, composition of the exhaust fumes, antipollution systems and interpret their values to find out about the engine's condition.

To learn about the methods of measuring exhaust fumes. Recognise the reasons for contaminant emissions in the engine. Diagnosis of breakdowns in an engine according to exhaust fumes analysis.



## E-LEARNING

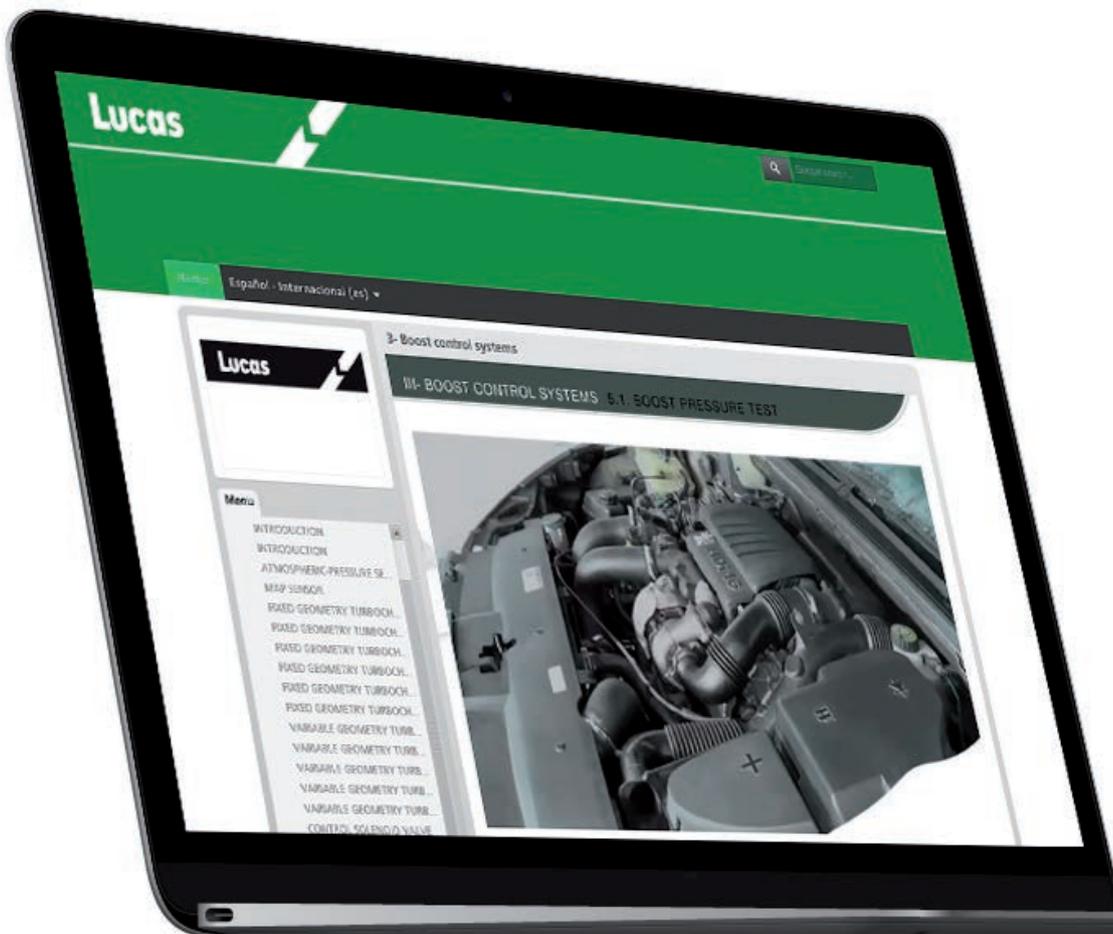
Lucas Academy offers professionals learning experiences of the highest quality, featuring the most innovative content. They therefore reflect not only where the automotive industry stands at the moment but also where it will be in the future.

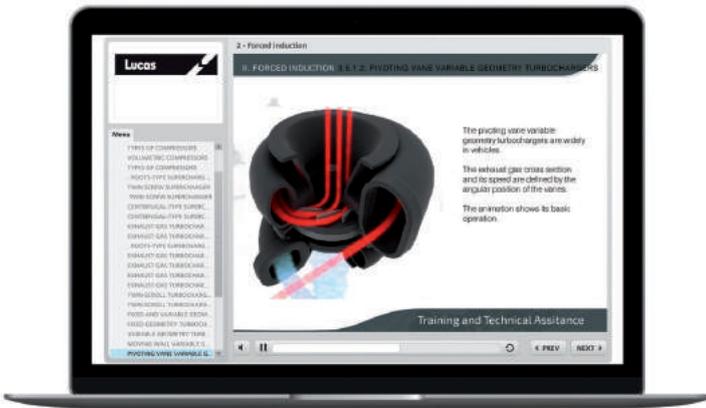
All of our e-Learning courses have been designed and developed by expert instructors with extensive experience in the automotive industry.

Their detailed expertise in the practical environment and their ability to share their knowledge in structured and up-to-date programmes ensures a fruitful and satisfactory training experience.

We have state of the art platforms and resources to adequately complete our online training, with the help of videos, 3D infographs and cutting edge multimedia material.

**Lucas Academy can provide its e-Learning training around the world, anywhere, anytime.**

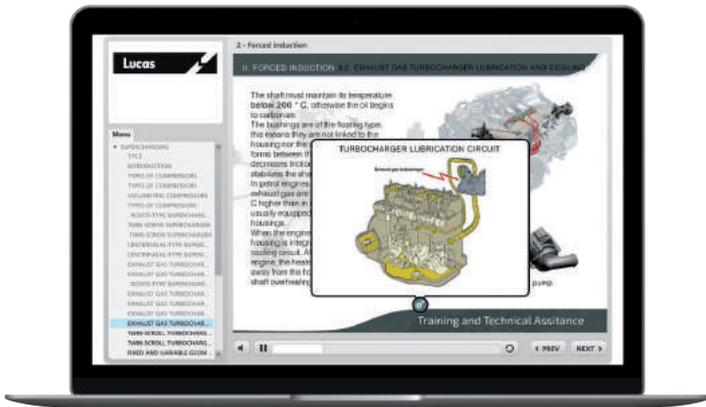




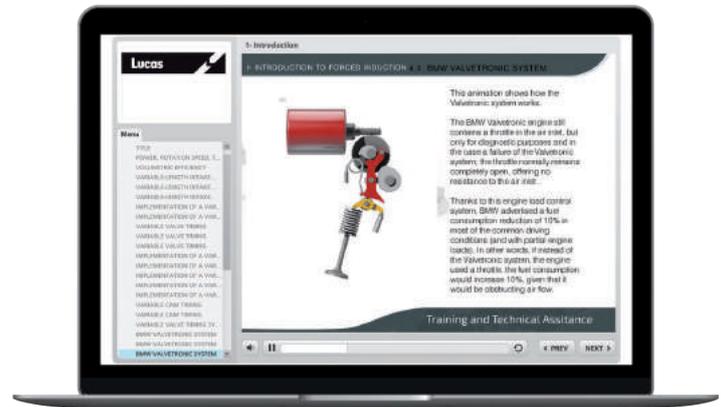
3D multimedia videos



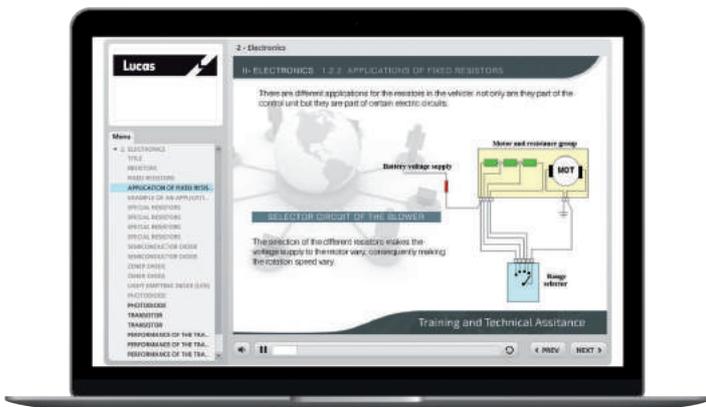
Fully explanation of the functioning of each component



Detailed high definition pictures



Motion graphics & visual effects



Interactive diagrams

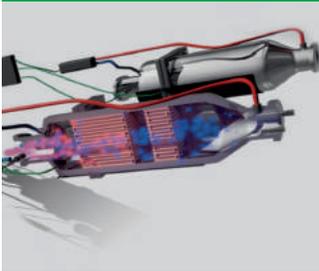
**We have the latest generation platform in order to assist online training using videos and 3D infographs. We can access anywhere around the world.**

**DBCRO1****Diagnosis of Bosch's Common Rail Systems****OBJECTIVES**

To have detailed knowledge of Bosch's electronic Common Rail injection system. Interpreting the functioning of the systems in order to diagnose any issues using the multimeter, oscilloscope and pressure tester.

Compare the functioning among different generations of injection systems. Differences between pumps, injectors and electrical components. Most common breakdowns among different injection systems. Diagnosis of high and low fuel pressure circuits.



**DMAS02****Diagnosis and Maintenance of Diesel Antipollution Systems****OBJECTIVES**

To find out about the elements that make up the diesel antipollution systems, the procedures for diagnosis, maintenance and repair diesel engines.

Methods for reducing polluting gases. Fault diagnosis of the elements for reducing of polluting gases before the combustion chamber (EGR, mixture control, Lambda probe, catalyts, FAP, DPF, SCR). Checking the wear points and common failures.





## TECHNICAL ASSISTANCE

### HANDLING OF TECHNICAL SUPPORT



The client and the workshop may encounter many technical problems but do not always have the necessary knowledge about each of the systems of all of the cars in the market.

We can assist them by providing that information or directly offering them an answer as to how to resolve the problem.

By calling our Technical Assistance Department by telephone and the process could be handled via two different ways:

#### TROUBLESHOOTING

Comprehensive technical advice for problem resolution.

#### DATABASE

Provision of technical information.



**+450**

incoming calls answered every day



**99%**

of the calls answered in the first call



**93%**

of the problems posed solved



**2,000**

helplines managed



**17**

technical experts available with over 10 years of experience in the automotive sector

# HELPLINE

## HANDLING OF TECHNICAL INCIDENTS



### 1. Technical issue

Customer calls the technical support helpline

### 2. Incidence analysis

Detailed information is collected to diagnose of the problem

#### Troubleshooting



**45,000**  
Cases solved



**EXPERIENCE**  
Technicians for multibrand garages and dealerships



**QUICK**  
Solutions

#### Database



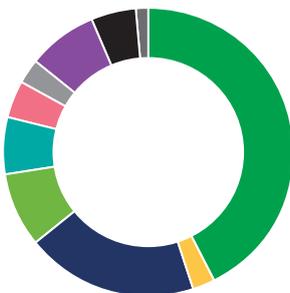
#### Procedures

- Assembly
- Dismantling
- Reset service
- Maintenance plan
- Localisation of components
- Bulletins

#### Data

- Schemes
- Tightening torques
- Repair times

#### % Technical consultations



- 47.3% Fuel systems
- 2.8% AC systems
- 21.3% Guided diagnosis
- 9.2% EOBD
- 7.1% Repair times
- 4.5% Hybrid
- 3.2% LPG
- 8.7% Tightening torques
- 5.3% Electric schemes
- 1.5% Fuel reserves



E-mail



Phone

## TROUBLESHOOTING

Case study 1

### MERCEDES CLASSE B 180 CDI



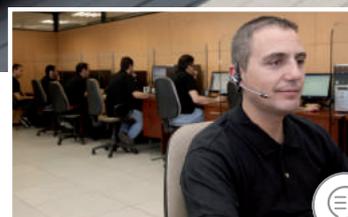
#### 1. Problem

The oil level/oil pressure warning light is illuminated.



#### 2. Workshop

Check the entire system lubrication (oil pump, filter...) and everything is in order, but the problem persists.



#### 3. Technical Analysis

Analysis and collection of information by technical support.

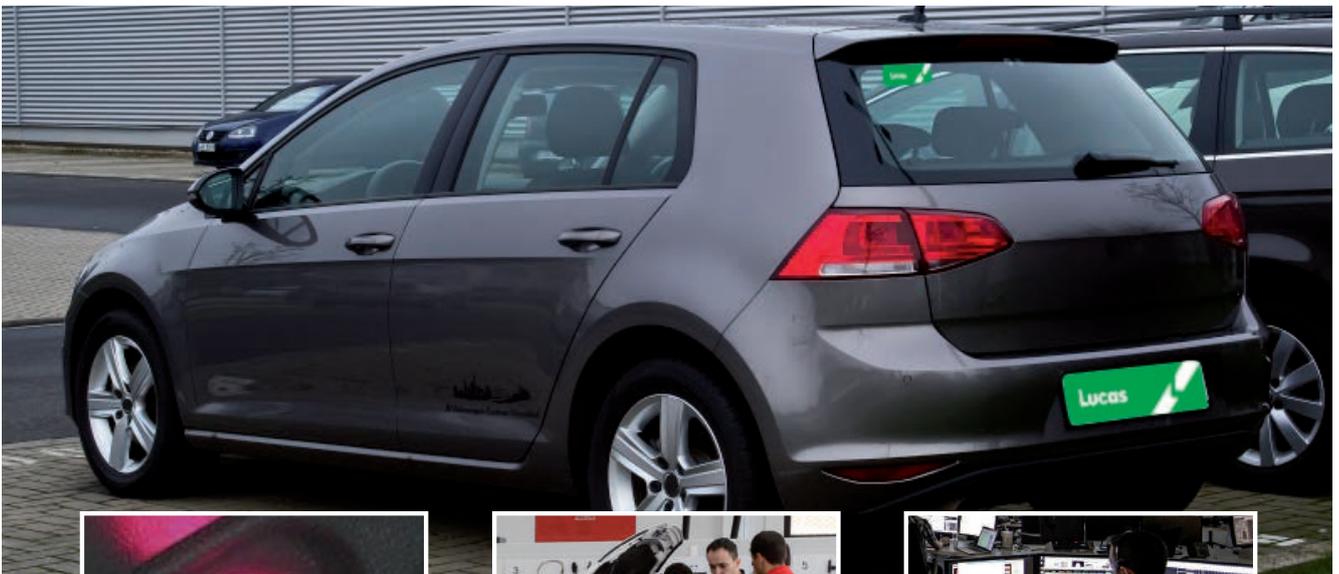


#### TECHNICAL SOLUTION

Check the particulate filter for correct regeneration operation as it is not automatically being done and the amount of diesel used for this purpose does not burn completely and ends up contaminating the engine oil. Perform a test on the DPF system and carry out a forced regeneration. Recheck values and everything should be in order.

Case study 2

## VOLKSWAGEN GOLF IV TDI 130



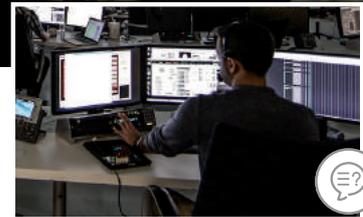
### 1. Problem

The oil light is illuminated when the engine is running.



### 2. Workshop

Check the oil level and everything is correct.



### 3. Technical Analysis

Analysis and collection of information by technical support.



### TECHNICAL SOLUTION

Effectively, the oil level is correct. Our technical information indicates that the bonnet switch is at fault, which is normally on the right side. You are prompted to check for continuity of the switch and the switch was discovered to be causing this error.

## DATABASE

Our database is an online tool that provides quick and easy access to a wide and comprehensive range of technical information.

### Comprehensive coverage

Data provided directly by the manufacturers themselves. (80% of information is obtained by vehicle manufacturers).

### Time-saving

Interactive illustrations of the location of components enable us to obtain the accessible information quickly and easily.

It saves recent searches to make it easy to switch from one procedure to another and to be able to restart the work from the point you left off.

It saves you time searching by offering access to all of the required technical information on a single screen.

### Increased business performance

Designed as an aid to assist professionals with the workflow in the workshop, therefore reducing down time. Less time spent on searches equals an increase in efficiency.

Generate revision checklists and professional quotes. Attend to more vehicles and increase the level of customer satisfaction.

### Multimedia section

Access to the videos about the product, which show how Autodata works: from access to the best review programmes, to the use of interactive images to locate the location of each component.



# 29,000

vehicle models worldwide



# +85,000

schemes and illustrations

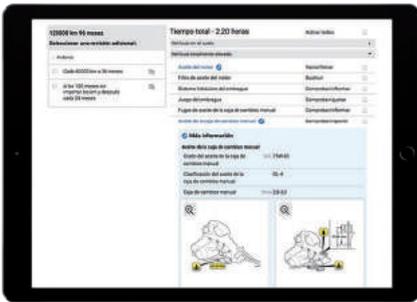


# 500,000

step-by-step procedures



## KEY FEATURES



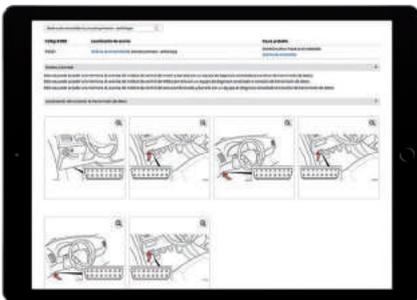
**Review guidelines with built-in data:**  
All technical data and illustrations are incorporated directly to save time.



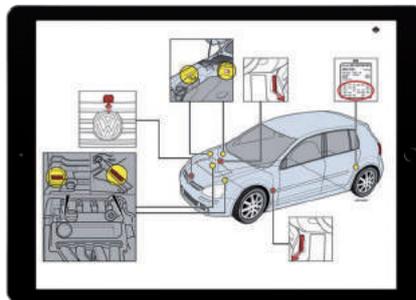
**Interactive pages components location**  
Look for components, see images and access information quickly and easily.



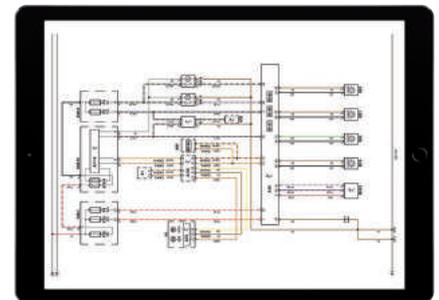
**Panel of recent activity:**  
Easily switch between different cars to keep the workflow efficient.



**Search fault codes:**  
Search by coder or name of component to instantly locate the information and solutions to the corresponding components.



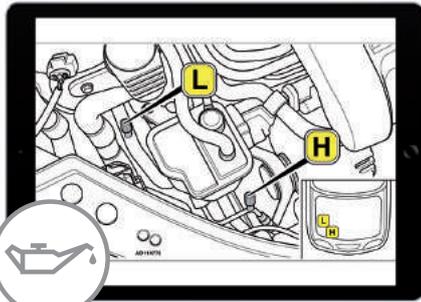
**Illustrations of the components:**  
The images we send are more detailed for a more informative experience. Component locations and indicated illustrations.



**Wiring diagrams:**  
Detailed wiring diagrams showing the path in which the circuit is laid out.

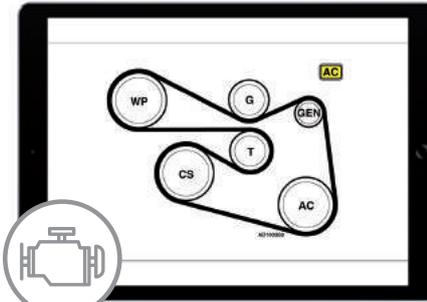
## DATABASE

### TECHNICAL INFORMATION



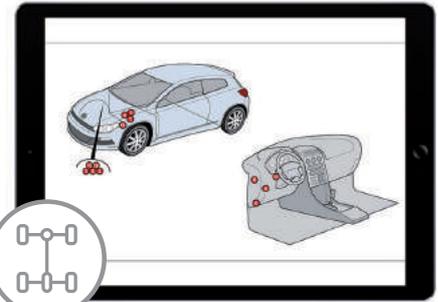
#### Review

- ▶ Illustrations of programs
- ▶ Review
- ▶ Interval indicator
- ▶ Brake check
- ▶ Maintenance of air conditioning



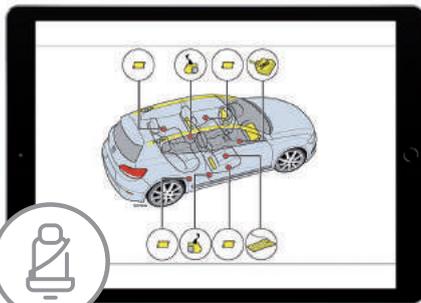
#### Drivetrain

- ▶ Engine management
- ▶ Command tree(s)
- ▶ Auxiliary and cam drive bells
- ▶ Clutches



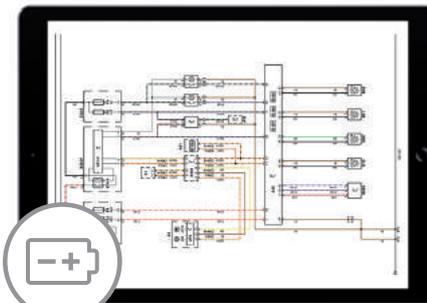
#### Chassis

- ▶ Antilock braking system
- ▶ Wheel alignment
- ▶ Tyre pressures



#### Body and passenger compartment

- ▶ Airbags
- ▶ A/C air conditioning



#### Electrical wiring schematics

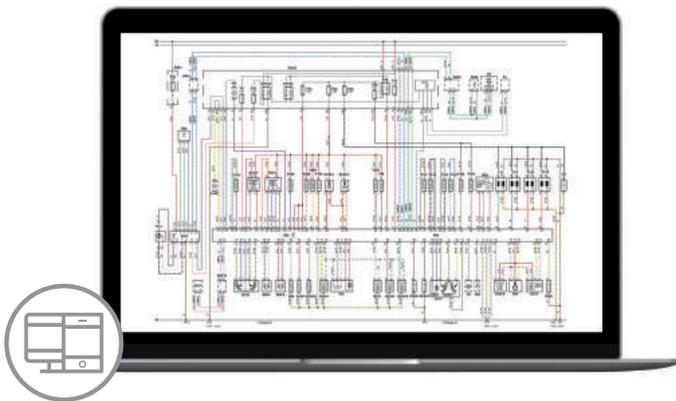
- ▶ Disconnection and reconnection of battery
- ▶ Electric schemes
- ▶ Faulty codes
- ▶ Location of electrical components



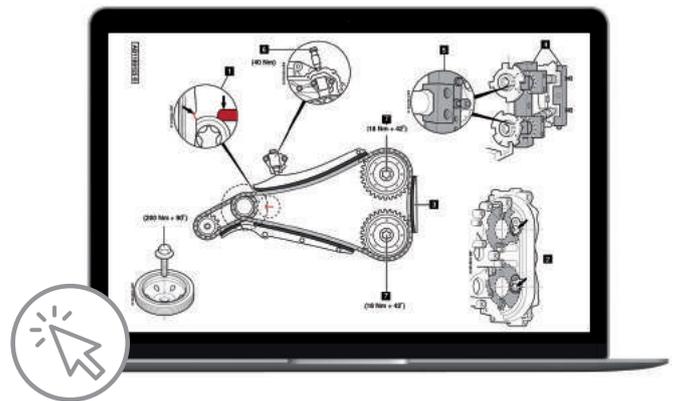
#### General information

- ▶ Technical specification
- ▶ Repair times
- ▶ Repair information
- ▶ Location of the rack number
- ▶ Warning symbols

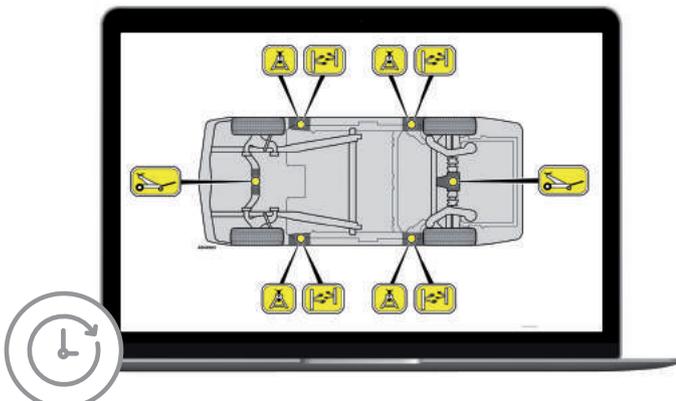
## ADVANTAGES



Works on PC, Mac, tablets and smartphones



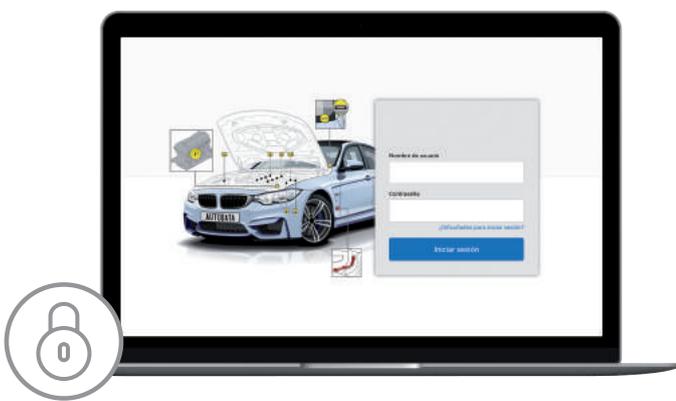
Instant information provided, with nothing to install



Continuously updated with the most recent data and functions



Created based on what happens in the workshop



Quick reply

**Comprehensive range of technical information.**









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## EUROPE

**UK** - Chichester Road - Ponswood Ind. Estate  
TN38 9BG - ST Leonards-On-Sea - East Sussex

**SPAIN** - Pol. Ind. Morea Sur, 59 - 31191 Beriain - Navarre

**ITALY** - Via F. Filzi, 15 - 20032 Cormano - Milan

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## NORTH AMERICA

**USA** - Southfield Town Center - 1000 Town Center - Suite 725  
48075 Southfield - Detroit - Michigan

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## CENTRAL AMERICA

**PANAMA** - Boulevard Costa del Este  
Financial Park Tower - Planta 20 - Costa del Este - Panama City

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## SOUTH AMERICA

**BRAZIL** - Rua Gastão Vidigal, 370 -13570-655 - São Carlos - SP



[lucasdiesel.com](http://lucasdiesel.com)

Trust **Lucas**